it and rock the lever L with the centre line of A as a fulcrum. The valve H is therefore returned to its original position, cutting off further oil pressure from the top of the piston in B. The amount which the latter moves is therefore dependent upon the movement of the piston in A, which in turn is dependent upon the fluctuation in pressure in the low-pressure steam main. The piston in B moving downwards presses upon the top of the valve rod suspending the low-pressure re-admission valve, pressing it either on to its seat or advancing it towards its seat to such an extent as to throttle the steam supplied through the low-pressure valve and maintain the pressure in the low-pressure steam main. For any load the closing (either partial or absolute) of the low-pressure admission valve is simultaneously followed by an opening of the high-pressure admission valve, and since these valves are proportioned to pass amounts proportional to their relative steam values, the speed is maintained constant. As soon as the pressure rises in the low-pressure steam main the reverse operation takes place, the low-pressure admission valve being opened and the high-pressure closed. A change of load will, of course, affect the speed of this turbine just as in any other tur-bine or steam engine, the governor balls moving inwards with an increase in load due to a slight decrease in speed. It will be seen, by following the movements of the levers shown, that the connecting rod P will be depressed with an increase in load, rocking the lever M, with the centre line of c ^ as a fulcrum, thus pulling down the valve K, and opening up the oil supply under the piston in c. As this piston rises against the spring above it, it opens either the high- or low-pressure admission valves, one or both of which may be in operation, and at the same time rocks the lever M again with the centre line of the connecting link p as a fulcrum, raising the valve K and shutting off the oil supply. It will be seen from this that the position of the piston in c, and hence the position of the valves, is dependent upon the load on the turbine.

Back-pressure Turbine.—A back-pressure turbine can be considered as the converse of an exhaust-steam turbine in construction as well as

in
its application. Thus, as an exhaust-steam turbine is, in regards to casing
and blading, the low-pressure portion of a standard high-pressure turbine,
so a back-pressure turbine takes the general form of the high-pressure half
of the same machine, although usually in a simplified form.

Its use arises where a demand for electrical or mechanical power coincides
with a demand for low-pressure steam, which may be needed for most vary-
ing purposes, such as factory heating, boiling and drying in paper-mills,
chemical-works, and the like, or for feed heating.

The difference in coal cost between raising steam at low and high pressures
and temperatures being a fraction of the total, it is economical to raise
steam at a comparatively high pressure and temperature, and to allow an
engine or turbine to convert the available difference into mechanical energy
before the steam is passed into the heating system.

The actual coal cost chargeable to the power generated by the engine
or turbine, assuming equal boiler efficiency when raising steam under either